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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,840	12/15/2005	Gonzalo Lucioni	2003P07069WOUS	6893
22116	7590	11/21/2008	EXAMINER	
SIEMENS CORPORATION INTELLECTUAL PROPERTY DEPARTMENT 170 WOOD AVENUE SOUTH ISELIN, NJ 08830			PULLIAS, JESSE SCOTT	
ART UNIT	PAPER NUMBER			
	2626			
MAIL DATE	DELIVERY MODE			
11/21/2008	PAPER			

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/560,840	<b>Applicant(s)</b> LUCIONI, GONZALO
	<b>Examiner</b> JESSE S. PULLIAS	<b>Art Unit</b> 2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 06 August 2008.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 15-32 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 15-32 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

1. This office action is in response to correspondence filed 08/06/2008 regarding application 10/560840, in which claim 33 was cancelled and claims 16, 17, 22, 27, and 32 were amended. Claims 15-32 are pending in the application and have been considered.

***Response to Arguments***

2. The amendment to the specification overcomes the objection, so the objection is withdrawn.

3. The amendment to claim 32 overcomes the 35 U.S.C. 112 second paragraph rejection of this claim, so the rejection is withdrawn.

4. The amendments to claims 16, 17, and 22 overcome the objections to these claims, and so the objections are withdrawn.

5. Applicant's arguments on pages 7-8 of the Remarks regarding the rejections under 35 U.S.C. 102(b) and 103(a) of the claims have been fully considered but they are not persuasive.

6. In response to applicant's assertion on page 7 that the elements identified by the Examiner in the rejection of claim 15 do not appear to be associated with one another in the required manner to perform the requisite functions to effect expansion or compression of an audio signal, see Lin Col 1 lines 20-25, which shows the invention of Lin is directed to sample rate conversion of audio signals. Converting the sampling rate of an audio signal effectively changes the sampling period, which results in a different temporal length for an audio segment of N samples. Hence the requisite functions to

effect expansion or compression of an audio signal are performed by the elements disclosed by Lin.

In response to applicant's assertions on page 7 and 8 that Lin does not teach a control unit that cyclically controls the temporal expansion or compression based on a conversion factor specifying a number of samples to delay, the examiner respectfully disagrees. Lin discloses a control unit that cyclically (**Col 3 lines 60-64**, the converter operates in read/write cycles) controls the temporal expansion or compression based on a conversion factor specifying a number of samples to delay (**Col 3 lines 17-21**, delay register delays samples by a period of the derived clock).

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 15-17, 20, 21, 26-30, 32, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin (6,252,919).

Consider claim 15, Lin discloses a device for the temporal expansion or compression of a sequence of audio samples in a data transmission network, comprising:

an input for receiving the sequence of samples of a signal (**Col 3 lines 6-7**, input stream of samples);

a memory unit operatively connected to the input stores the samples (**Col 3 lines 11-13**, a buffer receives the samples from the input stream);

a control unit that cyclically (**Col 3 lines 60-64**, the converter operates in read/write cycles) controls the temporal expansion or compression based on a conversion factor specifying a number of samples to delay (**Col 3 lines 17-21**, delay register delays samples by a period of the derived clock);

a working cycle having a predetermined number of working steps for processing a sub-sequence of the sequence of samples (**Col 3 lines 17-21**, read/write cycle, and **Col 5 lines 7-52** show the working steps for processing, for example, 8 samples);

a delay unit operatively connected to the input memory, the delay unit references the sample to be processed in one of the number of working steps, determines a delayed sample from the memory unit that has been delayed by the number of samples to delay in comparison to the sample to be processed (**Col 3 lines 42-45**, delay register delays samples, the step is shown in **Col 5 lines 12-25**, IN+DELAY has been delayed **DELAY** number of samples compared to IN);

a filter unit (**Col 3 lines 28-30**, filter stage), comprising:

a first multiplication unit operatively connected to an output of the memory unit and to a first coefficient unit providing a first coefficient in accordance to a first coefficient function, the first multiplication unit providing an output of the product of the

output of the memory unit and the first coefficient (**Col 5 lines 26-35**, 7/8<sup>th</sup>, then 6/8ths etc. show the coefficient function, which is multiplied by IN sample Xi), and

a second multiplication unit operatively connected to an output of the delay unit and to a second coefficient unit providing a second coefficient in accordance to a second coefficient function, the second multiplication unit providing an output of the product of the output of the delay unit and the second coefficient (**Col 5 lines 26-35**, 1/8<sup>th</sup>, then 2/8ths etc. show the coefficient function, which is multiplied by IN+DELAY sample Xi); and

a merge unit merging the outputs of the first and second multiplication units, wherein the first and second coefficients have a value between zero and one (**Col 5 lines 47-52**, see above, the coefficients are fractions, the IN and IN+DELAY streams are combined).

With respect to claim 27, it is directed to a method performed by the device of claim 15 that is associated with a device selected from the group consisting of a receiver unit of a data transmission network, a transmitter unit of a data transmission network, a music reproducing device, a dictating machine, a voice output unit and combinations thereof (**Col 1 lines 14-15**, digital audio system in a PC), and so is rejected for similar reasons.

With respect to claims 16 and 30, Lin discloses the first and second coefficient change in time (**Col 7 lines 22-24**, fades in or fades out over many sample periods, **Col**

**7 lines 43-46**, weighting factors A and 1-A are generated) and wherein the square of the first coefficient plus the square of the second coefficient equals one (**Col 8 lines 12-13**, A is set to 0 so A-1 is one).

With respect to claim 17, Lin discloses wherein the first coefficient starts with 1 at the beginning of the working cycle (**Col 8 lines 12-13**) and changes in accordance to the first coefficient function wherein first coefficient changes linearly (**Col 5 lines 26-34**, it linearly progresses down to 1/8<sup>th</sup> for example) or in accordance with a sigmoid function.

With respect to claim 20, Lin discloses the sub-sequences including at least fifty eight percent of all the samples of a sequence (**Col 5 lines 7-10**, dependent on the sequence length m=8 samples can be at least fifty eight percent).

With respect to claim 21, Lin discloses the processed sub-sequences including less than half of all the samples of a sequence (**Col 5 lines 7-10**, dependent on the sequence length m=8 samples can be less than half).

With respect to claim 26, Lin implicitly discloses the expansion or the compression is less than 20 percent (**Col 9 lines 36-38**, varying slightly in frequency implies compression or expansion less than 20 percent is needed).

With respect to claim 28, Lin discloses prior to merging the sub-sequence and the time-staggered subsequence the sub-sequence is filtered or the time-staggered subsequence is filtered (**Col 3 lines 28-41**, filter stage receives samples in the faded stream).

With respect to claim 29, Lin discloses the filter includes a first coefficient function and a second coefficient function (**Col 6 lines 38-49**, weighting function coefficients are complementary functions), the coefficient functions changing over time in accordance with a linear function (**Col 5 lines 26-34**, it linearly progresses down to 1/8<sup>th</sup> for example) or a sigmoid function.

With respect to claim 32, Lin discloses a subsection includes less than one third of the working steps of a working cycle (**Col 5 lines 7-52**, a read operation, for example, is a subsection since it is one of the steps and the process has more than 3 steps in the working cycle).

#### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (6,252,919) in view of Yoshida et al (5,687,240).

With respect to claim 18, while Lin discloses filter, Lin does not specifically mention a time-variant attenuator filter connected down stream from the merge unit.

Yoshida et al. discloses a time-variant attenuator filter (**Abstract lines 1-3**).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Lin by including a time-variant attenuator filter connected down stream from the merge unit in order to provide smoother and higher quality sound signals, as suggested by Yoshida (**Col 10 lines 50-54**).

With respect to claim 19, Lin discloses at least six audio units of approximately 30 ms are processed in a working cycle (**Col 5 lines 8-9**, 256 samples can approximate 30 ms depending on sampling rate).

11. Claims 22-24 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (6,252,919).

With respect to claims 22 and 31, Lin discloses a delay unit, multiplication units, and a merge unit (**See claim 15**). Lin does not specifically mention an additional delay unit operatively connected to the input memory, the additional delay unit determining a delayed sample twice that of the first delay unit, and an additional multiplication unit

operatively connected to an output of the additional delay unit and to an additional coefficient unit providing an additional coefficient in accordance to a additional coefficient function, the additional multiplication unit providing an output of the product of the output of the additional delay unit and the additional coefficient, wherein the merge unit merges the outputs of the first, second, and additional multiplication units.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Lin by including the additional delay unit determining a delayed sample twice that of the first delay unit, and an additional multiplication unit operatively connected to an output of the additional delay unit and to an additional coefficient unit providing an additional coefficient in accordance to a additional coefficient function, the additional multiplication unit providing an output of the product of the output of the additional delay unit and the additional coefficient, wherein the merge unit merges the outputs of the first, second, and additional multiplication units in order to merge three signals of different sampling rates instead of two, as suggested by Lin (**Col 1 lines 20-25**).

With respect to claims 23, Lin discloses the second coefficient function equals a second auxiliary function minus the product of a third auxiliary function and the first coefficient function (**See claim 15**. The second function may be viewed as  $1-1^*$ first function, so  $y[n] = 1$  is a third auxiliary function),

Lin does not specifically mention wherein the additional coefficient function equals the product of the negative of the second auxiliary function and the third auxiliary

function.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Lin to include an additional coefficient function equals the product of the negative of the second auxiliary function and the third auxiliary function, in order to weight a third signal for merging three signals, for reasons similar to those of claim 22.

Consider claim 24, While Lin discloses the sum of the first and second coefficient functions is one (**Col 5 lines 26-35**), Lin does not specifically mention additional coefficient functions.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Lin by including a additional coefficient functions, the sum of the first, second and additional coefficient functions is equal to one in order to avoid amplitude scaling of the signal during merging three or more signals, for reasons similar to those of claim 22.

12. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (6,252,919) in view of Takeuchi et al (5,432,296).

With respect to claim 25, while Lin discloses a filtering stage, Lin does not specifically mention an all-pass with the following transmission function  $H(z) = (z^{-N} + y) / (1 + y * z^{-N})$  where H is the transmission function and y determining a delay and y has

the value 0.5 or a value greater than 0.5.

Takeuchi et al. discloses an all-pass with the following transmission function  $H(z) = (z^{-1} + a) / (1 + a * z^{-1})$ , (Col 2 eq. 1, with N=1 and a=y is the same as the claimed transfer function). Takeuchi further teaches the coefficient "a" can be changed to change the delay, implying that a can be 0.5 or greater (Col 4 lines 23-26).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Lin by using an all-pass with the transmission function disclosed by Takeuchi, in order to control the delay of the signal, as suggested by Takeuchi (Col 4 lines 23-26).

### ***Conclusion***

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse Pullias whose telephone number is 571/270-5135. The examiner can normally be reached on M-F 9:00 AM - 4:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571/272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571/270-6135.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jesse S Pullias/  
Examiner, Art Unit 2626

/Talivaldis Ivars Smits/  
Primary Examiner, Art Unit 2626

11/18/2008